CLAIMS

What is claimed is:

1. An isolated polynucleotide comprising:
   (a) a nucleotide sequence encoding a polypeptide having lipoxygenase activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 80% sequence identity based on the Clustal alignment method, or
   (b) the complement of the nucleotide sequence, wherein the complement and the nucleotide sequence contain the same number of nucleotides and are 100% complementary.

2. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 85% identity based on the Clustal alignment method.

3. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 90% identity based on the Clustal alignment method.

4. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 95% identity based on the Clustal alignment method.

5. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide comprises the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18.

6. The polynucleotide of Claim 1 wherein the nucleotide sequence comprises the nucleotide sequence of SEQ ID NO:1, 3, 5, 7, 9, 11, 13, 15, or 17.

7. A vector comprising the polynucleotide of Claim 1.

8. A recombinant DNA construct comprising the polynucleotide of Claim 1 operably linked to a regulatory sequence.

9. A method for transforming a cell, comprising transforming a cell with the polynucleotide of Claim 1.

10. A cell comprising the recombinant DNA construct of Claim 8.

11. A method for producing a plant comprising transforming a plant cell with the polynucleotide of Claim 1 and regenerating a plant from the transformed plant cell.

12. A plant comprising the recombinant DNA construct of Claim 8.

13. A seed comprising the recombinant DNA construct of Claim 8.

14. An isolated polynucleotide comprising a first nucleotide sequence, wherein the first nucleotide sequence contains at least 30 nucleotides, and wherein the first nucleotide sequence is comprised by another polynucleotide, wherein the other polynucleotide includes:

(a) a second nucleotide sequence, wherein the second nucleotide sequence encodes a polypeptide having lipoxygenase activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 having at least 80% sequence identity based on the Clustal alignment method, or

(b) the complement of the second nucleotide sequence, wherein the complement and the second nucleotide sequence contain the came number of nucleotides and are 100% complementary.

15. An isolated polypeptide having lipoxygenase activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 80% identity based on the Clustal alignment method.

16. The polypeptide of Claim 15, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 85% identity based on the Clustal alignment method.

17. The polypeptide of Claim 15, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 90% identity based on the Clustal alignment method.

18. The polypeptide of Claim 15, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18 have at least 95% identity based on the Clustal alignment method.

19. The polypeptide of Claim 15, wherein the amino acid sequence of the polypeptide comprises the amino acid sequence of SEQ ID NO:2, 4, 6, 8,10, 12, 14, 16, or 18.

20. A method for isolating a polypeptide encoded by the polynucleotide of Claim 1 comprising isolating the polypeptide from a cell containing a recombinant DNA construct comprising the polynucleotide operably linked to a regulatory sequence.